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AS

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/636,134	08/10/00	BALOOCH	M IL-9940B

IM22/0118

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EXAMINER

FIELER, E

ART UNIT

PAPER NUMBER

1763

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DATE MAILED:

01/18/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/636,134

Applicant(s)
Balooch et al.

Examiner
Erin Fieler

Group Art Unit
1763



- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 19-30 is/are pending in the application.
- Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 19-30 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☐ Notice of References Cited, PTO-892
- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 U.S.C. § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 19, 21-26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russo et al. in view of Chrisey et al. (*Pulsed Laser Deposition of Thin Films* pp. 42-43, 294 and 456). Russo teaches a laser deposition apparatus comprising: a processing chamber (20), a pulsed excimer laser source (50), two targets (34 and 36), a rotatable multiple target support (30), a window (22) for permitting input from the laser to the chamber, a gas input port (24), an ion beam generator (40), and a substrate holder supporting substrate (10) (fig. 1 and col. 4 lines 7-24

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and col.5 lines 5-11). The claimed invention utilizes a excimer laser source to produce short-wavelength photons, and therefor the excimer laser which is used in Russo's apparatus is also capable of producing short-wavelength photons. Russo also teaches that the target material may be indium tin oxide or other metal oxide materials (col. 5 lines 56-68 and col. 6 lines 37-64).

The claimed invention teaches that the target material has a low work function and can be a metal oxide material. Therefor, the metal oxide target material taught by Russo must also have a low work function. In addition, Russo teaches that the temperature of the substrate should be controlled during deposition (col. 6 line 65- col.7 line 12). Russo does not teach a means for rotating or heating and cooling the substrate during deposition.

In *Pulsed Laser Deposition of Thin Films* by Chrisey and Hubler, there is a teaching that it is sometimes necessary to control the temperature of the substrate during deposition to create a uniform temperature and film across the substrate. In addition, the text shows that the substrate may be rotated during processing and that a number of different metals may be deposited by laser ablation (pp.294 and 456). It would have been obvious to one skilled in the art at the time of the invention to have an apparatus as taught by Russo with a means for rotating the substrate and controlling the temperature of the substrate because they allow for uniform more uniform deposition on the substrate.

3. Claims 20, 27, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russo et al. and Chrisey et al. as applied to claims 19, and 21-30 above, and further in view of Moto et al. Russo and Chrisey teach all the limitations of the claims discussed above. Neither

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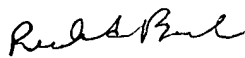
Russo nor Chrisey teach that the substrate may be tilted as well as rotated during processing. Moto teaches that the substrate may be rotated and tilted during laser ablation (col. 5 lines 40-58). It would have been obvious to one skilled in the art to employ a tilting and rotation means for the substrate holder, as taught by Moto, in a laser deposition apparatus, taught by Russo and Chrisey, because moving the substrate allows for a uniform film to be formed (col. 5 lines 50-54). Although Moto doesn't teach the specific rpm of substrate rotation or the tilting angle of the substrate or the pulse length of the laser, these limitations would be obvious to optimize to one skilled in the art. The experimental modification of prior art in order to optimize operating conditions fails to render the claims patentable in the of an unexpected result. *In re Aller*, 105 USPQ 233.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin Fieler, whose telephone number is (703) 305-0516 .



Erin Fieler

January 12, 2001



RICHARD BUEKER
PRIMARY EXAMINER
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